REMARKS

Claims 1-5, 8-14 and 16-24, of which claims 1 and 19 are currently amended and claim 23 is new, appear in this application for the Examiner's review and consideration. Claims 1 and 19 are amended for clarity. Claims 23 and 24 are added as being directed to an embodiment of the invention. Support for the amendments is found throughout the original specification. (See, for example, Published Application US 2004/0175902, FIGS. 13-17.) Since the amendments do not introduce any new matter, the entry of the amendments is warranted at this time.

Applicants appreciate the courtesy extended to Applicants' attorneys during the April 22 telephonic interview. During the interview, the claims and U.S. Patent No. 6,191,007 to Matsui et al. were discussed. Applicants respectfully note that the Examiner's interview summary mailed April 23, 2008 incorrectly states that Applicants' attorneys "alleged after removing the substrate 118 at Figs 22, 17A-17D of Matsui, an electronic component will be formed in the second face." No such statement was made during the interview. Instead, the Applicants' attorneys discussed that the pattern does not stay on the same first face in Matsui, as explained in the Amendment filed on October 31, 2007. The following remarks reflect the discussion during the interview.

In response to the rejections in the Office Action, Applicants hereby incorporate by reference the remarks submitted in the previous Amendments and further submit the following comments.

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsui taken with U.S. Patent No. 6,107,213 to Tayanaka. Applicants respectfully traverse.

As explained in the Amendment filed on October 31, 2007, Matsui does not disclose a method of thinning a wafer recited in claim 19, but instead relates to transferring a pattern from one substrate to another. To more particularly define the invention of claim 19 under 35 U.S.C. § 112, second paragraph, it is amended to clarify that the electronic component or circuit remains on the first face when the stiffener and remaining portion are removed from the first portion of the wafer. Such thinning method, which keeps the electronic component or circuit remaining on the original face of the original wafer, is not disclosed or suggested in Matsui.

Also, the base substrate (for example, the substrate 112 in FIGS. 17C and 17D) that is bonded to the original wafer in Matsui serves as a "supporting substrate" (Matsui at 31:27-30), and must be sufficiently thick to support the structure during the subsequent splitting as shown in the figures. Consequently, even if the pattern of Matsui were assumed to be on a face of the wafer in FIGS. 17 and 22, during and after the splitting, the pattern cannot be said to remain on the same face of the wafer because the pattern is now separated from the face that was opposite from the implantation by the thick support substrate.

It is noted that the main faces of a semiconductor wafer are much like those of a coin. Any submerged region well buried within the coin is not considered to be a face. Similarly, the pattern in Matsui after splitting is not on a face that was opposite from the face through which the ions were implanted in FIG. 22. It is buried well below the thick support layer.

Also, the new face formed by splitting (indicated by the bottom arrow in FIG. 17D reproduced below) was not a face at all at the beginning of the Matsui process, but it was at a level submerged within the original wafer (indicated by an arrow in FIG. 17C below), which is why the ions were required to be implanted. This submerged level becomes a new face only after the splitting, when the portion of the wafer below that level is removed, and the resulting wafer (denoted "A" below) has the two faces denoted by the arrows drawn onto FIG. 17D as reproduced below. Thus, the pattern in Matsui does not remain on any one face during the transfer process.

FIG. 17C

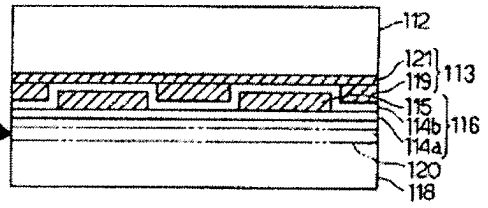
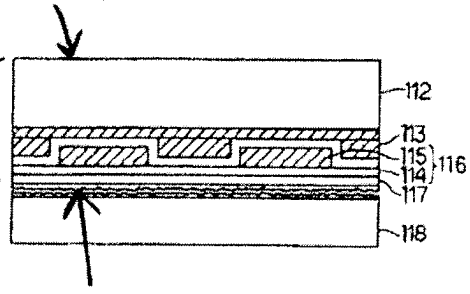


FIG. 17D



In addition, because the purpose of the Matsui process is to transfer the pattern from the substrate 118 to the base substrate 112, it would not be possible to perform the transfer as done in Matsui, while maintaining the pattern on the same face of the wafer as recited in the claims.

Tayanaka does not remedy the deficiencies of Matsui. Tayanaka is cited as teaching the application of a stiffener to both first and second faces of a wafer prior to removing portions thereof. (Office Action at p. 2.) Tayanaka, however, does not disclose or suggest thinning a wafer, or maintaining an electronic component or circuit on one face as recited in claim 19.

Thus, the combination of Matsui and Tayanaka does not render claim 19 obvious, and the rejection of claim 19 under 35 U.S.C. § 103(a) should be withdrawn.

Claim 23 additionally recites that the electronic component or circuit is supported on a self-supported portion, which is between the electronic component or circuit and the zone of weakness, both during and after the stiffener removal, as shown in FIGS. 13-17. Claim 24 defines that the same side of the electronic component or circuit is supported by the self-supported layer during and after the removal. Since the Matsui base substrate provides the support for the pattern at least after splitting, and the base was not between the pattern and the implanted layer, Matsui does not disclose or suggest the invention of claim 23 or 24.

Claims 1-4, 8-11, 16-18, 20, 21, and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsui taken with Tayanaka, and further in view of U.S. Patent No. 5,920,764 to Hanson et al.

Similar to claim 19, it is clear from claims 1 and 20 that the electronic component or circuit remains on the same face of the original wafer in the claimed thinning methods. Such thinning methods are not disclosed suggested in either Matsui or Tayanaka, as explained above. Hanson does not remedy the deficiencies of Matsui and Tayanaka. As explained in the October 31, 2007 Amendment, Hanson is directed to restoring a rejected wafer by removing circuitry that was initially on the wafer. Thus, Hanson is opposite of providing an electronic component or circuit on a wafer, and is not relevant to the present methods of thinning a wafer while preserving an electronic component or circuit on a same surface thereof. Further, because they relate to completely different wafer processing and uses, the intent of the Hanson teaching is incompatible with that of Matsui. The removal of electronic component according to Hansen for wafer

restoration would defeat the purpose of Matsui, which seeks to provide a pattern on a wafer by transferring it from another wafer.

Hence, the references as a whole do not disclose or suggest claims 1 and 20, nor do they provide any motivation to one of ordinary skill in the art to combine them in the manner mentioned in the Office Action. The rejection of claims 1-4, 8-11, 16-18, 20, 21, and 22 are rejected under 35 U.S.C. § 103(a) should therefore be withdrawn.

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsui taken with Tayanaka and Hanson, and further in view of U.S. Patent No. 6,291,314 to Henley. Claims 12-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsui taken with Tayanaka and Hanson, and further in view of U.S. Patent No. 6,020, 252 to Aspar and U.S. Publication No. 2002/0055237 to Sayyah.

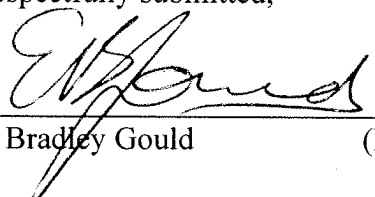
Henley is cited as teaching removal by heating or blowing a jet of fluid adjacent the zone of weakness. Aspar is cited as teaching applying a stiffener comprising a rigid or flexible support, and Sayyah is cited as teaching using a release stiffener layer comprising an adhesive/wax layer. These references, however, fail to remedy the deficiencies of Matsui, Tayanaka, and Hanson. None of these references, alone or in any combination with Matsui, Tayanaka, and Hanson, discloses or suggests thinning a wafer in the manner recited in claims 5 and 12-14, where the electronic component or circuit remains on the same face throughout the process.

Thus, the rejections of claims 5 and 12-14 under 35 U.S.C. § 103(a) also should be withdrawn.

Accordingly, it is believed that the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner disagree, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

Respectfully submitted,

Date: May 5, 2008



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